

4 PROJECT METHODOLOGY

4.1 Securing Buy In to REvision 2010

4.1.1 Methodology

The first element of the project sought to understand the needs of key regional bodies such as the South West Regional Assembly and to secure buy in to the project at both regional and sub regional level.

At a regional level meetings were held with:

- Regional Assembly Planning Working Group
- Regional Assembly Environment Sub Group
- Environment Agency
- Regional Environmental Network
- Chamber of Rural Enterprise
- Countryside Agency/CPRE
- British Wind Energy Association
- RSPB
- Regen SW

At sub regional level meetings were held with:

- Glos and Wilts CRI project meeting
- Wiltshire LA Renewable Energy Strategy Group
- WPSD joint energy and waste forum (Avon)
- Cornwall members planning forum
- Dorset Structure Plan Environment Focus Group
- Devon CC Environment Directorate Management Board

At these meetings the project, its aims, objectives and approach were introduced and discussed. A project brochure (Annex 1) was distributed to raise awareness of the project.

4.1.2 Key themes and outcomes

These meetings were successful in raising awareness of the project and ensuring that the workshop invitations did not hit key stakeholders cold. The meetings also provided a forum for a number of key issues and misunderstandings to be dealt with before the workshops. This enabled the workshops to be more productive and get further in their discussions.

Some early responses from these meetings included:

- Generally a good response to the idea of targets, though a significant level of uncertainty about what targets can achieve was expressed. This was both from those who thought that targets might limit achievement as well as those who thought that targets might be set too high
- Concern about form of targets, % of supply vs consumption vs capacity
- Emphasis on need to involve districts
- Concern about role of elected members

- Agreement on role of unitary authorities and definition of sub regions under consideration
- Strong emphasis on need to integrate project with local delivery mechanisms, making use of existing partnerships and initiatives
- Strong support for consultative approach to project
- Uncertainty about the potential users of regional locational guidance
- Strong support for landscape sensitivity assessment from environment/landscape sector
- Strong support for sub regional resource mapping from local authorities

4.2 Stakeholder Survey

4.2.1 Methodology

The main purpose of this survey was to obtain a more detailed understanding of issues that might need to be addressed during the sub-regional consultation events. The survey was carried out in the form of a questionnaire e-mailed to relevant sub-regional stakeholders.

The five page questionnaire was split into three main sections:

1. The first section simply asked for details of the respondent. This information was required to enable us to group answers and views into the seven sub-regions, as well as enable us to pick up any patterns between, for example, local authority views as opposed to people in the renewable energy industry.
2. The second section of the questionnaire was aimed specifically at getting information from stakeholders to inform our planning of the sub-regional events. This part of the questionnaire was almost entirely qualitative and covered issues such as existing partnerships and projects in the sub-regions and likely opportunities for the integration of renewable energy targets.
3. The final section of the questionnaire asked for consultees views on renewable energy in terms of its overall place in alleviating climate change and the suitability of individual technologies within the sub-regions. A copy of the questionnaire can be found in Annex 2 for reference.

Originally, it was proposed that questionnaires should be sent to members as well as LA officers and other LA partners. However, after consultation with GOSW and other project partners it was decided that it would not be appropriate at this stage to send questionnaires to members. In total, 550 questionnaires were e-mailed to named contacts throughout the seven sub-regions. The contacts included officers within each local authority down to district level with a remit for energy, planning, environment or waste. In addition, local authorities within each sub-region were asked to supply lists of local strategic partners, including key NGOs and community groups. Contacts were also sought from local renewable energy industries and organisations, as well as local representatives of national organisations such as the environment agency and the NFU.

Two weeks after the questionnaires were first sent out, a review of replies was carried out to ensure that we were obtaining a balance of replies. Follow up phone calls were then made to contacts where a reply was felt to be critical in terms of balance between the sub-regions and between LAs, industry etc.

In total we received 115 replies, which represented a response rate of over 20%. Over 60% of responses were from local authority officers with a good split between county, unitary and districts. The rest were split between community groups, environment/conservation groups and the renewable energy industry.

4.2.2 *Key themes and outcomes*

The key themes from the stakeholder survey are summarised in Annex 3.

A summary of the issues raised includes:

- A positive response to renewable electricity & targets. However it was felt to be vital that targets are achievable and embedded within policy and practice, in particular the planning system – this has been the main focus for the project
- Recognition of the strong energy partnerships both inside and outside local authorities that exist throughout the South West that can provide significant expertise, enthusiasm and a desire to act
- A perceived lack of awareness, understanding of benefits and opportunities, specific renewables expertise, resources (time), political will and policy guidance amongst local authorities
- The potential for integrating renewable energy with new development, regeneration and waste management strategies
- Concern about landscape impacts, energy from waste, lack of public awareness, uncertainty about community benefits

The second two issues provide two sides of the same coin. There is clearly a significant level of enthusiasm amongst local authorities and their partners to engage with this subject. However, local authority officers in particular feel heavily constrained in their ability to act. REvision 2010 has been able to raise awareness around some of the opportunities and constraints. However, a great deal more work will need to be done to address the full range of constraints outlined within this report.

The potential for integration with new development and the issues relating to landscape, public acceptance, etc. will be dealt with in more detail under section 4.7 covering the regional conference.

The views expressed on which technologies were the most appropriate to the sub region (results in Annex 3) demonstrates the wide disparity in understanding of what constitutes 'appropriate'.

4.3 **Resource Mapping**

4.3.1 *Methodology*

The objective of the resource mapping exercise was to identify the renewable energy resources that could contribute to the 2010 electricity generation targets in each sub-region.

The following renewable energy technologies were considered:

- Wave power – offshore and shoreline
- Tidal stream
- Tidal barrage
- Small-scale hydro power

- Solar photovoltaic (PV)
- Biomass – woodlands, energy crops and straw
- Centralised anaerobic digestion (CAD)
- Poultry Litter
- Landfill gas (LFG)
- Energy from waste (EfW)
- Onshore wind
- Offshore wind

A GIS based approach, similar to that used in the regional resource assessment by Terence O'Rourke and ETSU (TORE) in 2001, was used. In some cases resource data was used directly from the report or it was extrapolated from regional data. In others, where variations in yields, technology efficiency, policy or legislation, etc., have had a significant effect, the resource was re-computed from first principles. The key differences between the findings of the TORE report and this one are outlined within section 5.1.

This process started with an assessment of the technical resource, eg land area available and technology efficiency/yields, etc., then exclusion of designated areas like AONBs, National Parks and Heritage Coasts. A range of other practical constraints such as urban areas, inter-visibility limits, buffer zones around dwellings, roads, etc., were also applied where appropriate. Finally, some assumptions about the economic viability and maturity of each technology were used to estimate the accessible resource potential available within the 2010 time frame. Full details of the methodology, constraints and assumptions that were applied to each technology are contained in Annex 4.

What was left was an estimate of the maximum resource that could be exploited, if all the individual power plants concerned could get planning permission, operating permits, capital finance, electricity supply contracts and be built by 2010.

4.3.2 Outcomes

The maps within Annex 5 and the tables within Annex 6 show the results of the resource mapping exercise for the region as a whole and broken down by sub region.

This information was fed into the consultation workshops as the starting point for discussions. The outcomes of the resource mapping exercise demonstrate what could be technically, economically and practically achieved taking into account national landscape designations. The workshops then were able to consider what additional issues would need to be considered in order to identify achievable targets over a 2010 timeframe.

Whilst the majority of the findings of the resource mapping were agreed with by stakeholders and the renewable energy industry, there was some concern expressed that the accessible resource identified for technologies like hydro, solar and wave was too low. Any resource assessment is only a snapshot based on currently available information and will quickly date. For wave and solar PV it might be the case that technologies develop faster than assumed within the resource mapping exercise. For hydro there is some evidence that the Environment Agency is taking a more positive approach to the granting of abstraction licences. However these changes will have a minor effect and will not change the overall assumptions about the scale of development required from the three main technologies, onshore wind, biomass and energy from waste if the targets are to be met.

The targets will not be technology specific and therefore if some technologies perform better than is assumed here, the target will simply be easier to reach.

4.4 Landscape Sensitivity Assessment

4.4.1 Methodology

Landscape sensitivity is a major barrier to the implementation of some renewable energy sources. This is particularly true in the case of onshore wind due to its visual impact and to lesser extent for energy crops. Although there may be a significant accessible resource in an area, if the local landscape cannot accommodate it, it is unlikely to be realised.

Alongside Revision 2010, GOSW commissioned Land Use Consultants to carry out a landscape sensitivity assessment of wind and biomass developments. The assessment was based on the Countryside Agency's countryside character areas, of which there are 41 in the South West.

See Annex 7 for the detailed description of the methodology used, Annex 8 for the results of the analysis for each of the South West's character areas and Annex 9 for the South West sensitivity maps for wind and biomass.

The assessment was then used as an additional filter to refine the judgement about the level of the accessible onshore wind resource that might be implemented having considered the potential landscape impacts in the South West.

The effect of landscape sensitivity on the potential energy crop resource was not considered significant due to the small percentage of agricultural land involved and the availability of alternative sites.

Put another way, the resource for wind is so great that the landscape impacts become one of the major constraints. However for biomass/energy crops the resource is not so great that within a strategic assessment such as REvision 2010 it is more likely that it is the resource and related practicalities that become the determining factors, as opposed to other considerations such as landscape impact. However, this does not mean that within any individual proposal landscape impacts will not be important.

4.4.2 Outcomes

The landscape sensitivity assessment suggests a need to discount approximately 50% of the accessible economic resource for onshore wind across the whole South West. This figure does vary much between the sub regions. For more information on the approach used to discount the resource using the landscape sensitivity assessment see Annex 4. The assessment has been used for developing a strategic view about how landscape issues interact with the accessible economic resource. It is not intended to be used as guidance for site identification. Further study based on smaller scale character areas or landscape typologies will be required to support site identification.

The approach to this landscape sensitivity assessment was fed into the workshops in order to demonstrate how REvision 2010 would take account of landscape issues in developing the draft target ranges.

Land Use Consultants have also undertaken a similar but more detailed (smaller scale landscape areas) exercise for Cornwall County Council. Comparison of the broad and small scale results for Cornwall show no significant differences in accessible resource. Whilst the average sensitivity went up by about 15% across Cornwall following this more detailed assessment, when the impact on the accessible economic resource was considered the reduction was only 4MW, from 188 MW to 184MW. This small reduction was due in part to the fact that the original resource mapping had already discounted all development in AONBs and National Parks. Other increases in sensitivity were in lower wind speed areas and so did not have a significant impact on the potential resource.

4.5 Consultation Workshops

4.5.1 Methodology

Consultation workshops were held in each of the seven sub regions, defined within this project as Cornwall, Devon, Somerset, Dorset, Wiltshire, former Avon and Gloucestershire.

The workshops were held between 25th March and 10th April. The participant list for each workshop is provided as part of each workshop report, detailed within Annex 12 and available at www.oursouthwest.com/revision2010.

The target audience for the workshops included:

- Local authority officers and members primarily with planning, energy and sustainability interests (though others did attend)
- Energy NGOs – e.g. DARE, SWEA, REOC
- Environment sector NGOs – e.g. CPRE, Countryside Agency, English Nature, RSPB
- Community interests, e.g. Market and Coastal Town Initiatives
- Agricultural sector e.g. NFU, CLA

The renewable energy industry was not targeted, though some attended. The industry was, however, engaged through the survey, the regional conference and individual dialogue. The workshops were intended to provide local authorities and their partners with the opportunity to discuss the issues without feeling constrained by the presence of commercial interests.

The principal aim of the workshops was to provide an opportunity for the sub regions to outline the issues that they felt should be taken into account in setting a target that was considered achievable by 2010.

The workshops had presentations on:

- The accessible renewable electricity resource by technology within the sub region, having considered technical, economic and landscape designation constraints within a 2010 timescale
- The work being carried out by Land Use Consultants on the landscape sensitivity assessment
- The past, present and planned activity on renewable electricity policy and practice within the sub region

The workshops sought to identify:

- The positive and negative factors that will affect the achievement of the accessible resource within the sub region by 2010. The consultation sought views on the nature and the degree of impact of the factors raised.
- Potential mechanisms for embedding targets within existing/future local authority policy/strategy development in order to maximise the successful implementation of the target.

The discussion within the workshops focussed largely, though not entirely, on the three technologies considered most important in achieving the 2010 target, namely: onshore wind, biomass and energy from waste. Other technologies were covered and it was emphasised that even if technologies like wave, solar PV and hydro were not in a position to make large contributions to the 2010 target, they were nevertheless crucial to support for other reasons. For PV and wave their importance comes from the significant potential contribution to targets for 2020 and beyond. PV and hydro also represent two relatively low impact and small scale technologies that are suited to encouraging community and household participation.

Annex 10 provides an agenda from a typical workshop. Annex 11 provides a summary of the evaluation sheets from the workshops.

4.5.2 *Key themes and outcomes*

Typical areas of interest highlighted by the questions raised during the workshop included:

- Concern about energy from waste, its impacts and its relationship with sustainable waste management strategies
- Uncertainty about landscape impacts of wind in particular
- Interest in the nature of community benefits and how to secure them
- Concern about public acceptability and the need for education and awareness
- Uncertainty about why some technologies were emphasised (wind, biomass and energy from waste) and others weren't (tidal, wave, offshore wind, solar PV, hydro)
- The role of the renewable energy industry
- Uncertainty about the link with the wider sustainable energy strategy and developments post 2010

These issues were addressed within the workshop reports in Annex 12 and available at www.oursouthwest.com/revision2010.

REvision 2010 was able to raise the profile of the positive opportunities for energy from waste solutions and how these can be integrated within sustainable waste management strategies.

There is clearly a wide range of views about how renewable energy should be implemented. REvision 2010 took the view that given the timescale to 2010 the targets will only be met if there are commercial, large scale developments of three main technologies, onshore wind, biomass and energy from waste. Other technologies will play a part and will become increasingly important after 2010. However, for various economic and technological reasons they are unlikely to play a significant role in terms of scale over the 6 years before 2010. If the three technologies identified by REvision 2010 are not progressed, it is very unlikely that the 2010 target will be met.

Issues relating to landscape impacts, community benefits, public acceptability, the renewables industry and sustainable energy are discussed in more detail in section 4.7 on the regional conference.

Typical issues that were raised in relation to the three key technologies and the sub region's ability to develop them included:

Energy from waste:

Negative - Relationship with local waste management strategies/plan, existing waste management contracts, concern about technology development, public acceptability and perception of technologies as incineration

Positive - Ability for local authority to influence outcomes as waste management authorities, dealing with an existing problem, ability to be integrated in appropriate place within waste hierarchy, low emissions, range of scales to fit need

Onshore wind:

Negative - Landscape/visual impact, public acceptability, MOD/Civil Aviation Authority constraints, more local environmental siting constraints,

Positive - Proven off the shelf technology, clean, green and free resource, industry interest and capability, positive economics, potential community benefits

Biomass:

Negative - Marginal economics, farmer/generator uncertainty over crop supply/demand, timescales to establish plant and crop, need for local heat loads

Positive - Potential contribution to rural regeneration, farmer diversification, job retention within agriculture, availability of grants for crop establishment, South West success in securing capital grant funding from central government

4.6 Developing Target Ranges

4.6.1 Methodology

The technology specific feedback from the seven workshops was fed into the development of the assumptions behind the target ranges. The sensitivity of the target ranges was tested by calculating what the sub regional targets might look like if they were allocated as a percentage of the accessible resource in each sub region and in proportion to the population of each sub region.

These values can be considered as the two extremes of the target envelope, one driven by consumer demand for electricity, the other by the available renewable energy resource. The final target ranges were determined by integrating the realisable resource data with feedback from the workshops, knowledge of developers' plans and aspirations, together with informed judgements as to what might be achievable in each sub region by 2010.

In each case, the target range was set by establishing a high and low figure for onshore wind. As potentially the most controversial element of the target it was felt to be politically important for sub regions to have to make a definite judgement on the level of the potential wind contribution. However it was stressed all the way through the process that the end result should be a target for renewable electricity as a whole and not for individual technologies. The suggested technology mix was merely to give confidence that the target was achievable.

4.6.2 Outcomes

Figure 3 below provides a summary of the target ranges prior to the final round of discussion with local authorities. The figure demonstrates that if all areas adopt targets in the bottom of the range then the regional target (597MW) will not be met. However if targets are adopted towards the top of the range then the target will be exceeded. Throughout the South West as a whole there are just over 2 million homes. Reaching the lower end of the target range could therefore supply the equivalent of nearly a third of the homes in the South West.

The targets are not technology specific but for renewable electricity as a whole. This provides the flexibility for individual areas to respond to the opportunities as they arise rather than predetermining the technology mix in advance.

Figure 3: Summary of draft target ranges prior to final adoption process

	Draft Target Ranges (installed capacity)	Equivalent homes supplied
Former Avon	35-52 MW	42,750-62,500
Cornwall	93-108 MW	91,700-101,750
Devon	136-166 MW	167,250-187,000
Dorset	64-84 MW	73,500-86,750
Glos	41-57 MW	53,000-63,500
Somerset	61-81 MW	89,750-103,000
Wiltshire	70-90 MW	84,250-97,250
South West	555-694 MW	652,250-751,750

A summary of all the target ranges prior to the final adoption process is provided within Annex 13. Annex 14 summarises the targets as they now stand as of January 2004. Annex 15 provides a more detailed rationale for the target range in each sub region.

4.7 Regional Conference

The regional conference held in May 2003 aimed to provide:

- A regional snapshot of the progress, direction and outcomes from REvision 2010
- An opportunity to consider in more detail some of the key issues coming out of the consultation that will affect the ability of the region to meet its targets
- An informal opportunity for delegates to network with other stakeholders within the RE industry, local authorities and other interested parties

It was attended by approximately 150 delegates that included members and officers from district, unitary and county authorities, representatives from the renewable

energy industry, energy and environment sector NGOs, the community sector and key regional bodies. See Annex 16 for a full list of delegates.

The day consisted of a combination of presentations in the morning and workshops in the afternoon on four key themes distilled from the consultation process including:

- Timescale to 2010 and developing local authority and industry partnerships
- Public acceptability and community partnership/benefits
- Landscape impacts and landscape sensitivity assessment
- Sustainable energy agenda and developing a 2020 time frame

The evaluations were on the whole very positive about the day (evaluations scored the event an average 3.9 out of 5) with delegates very pleased with the event organisation and its facilitation (average 4 out of 5) and the presentations (average 3.8 out of 5). The workshops were not valued quite so highly (average 3.5 out of 5). The majority of any negative comment related to the feeling that there were not enough clear actions coming out of the day and there was not enough discussion of practical delivery, though it was also recognised that there was already a lot packed into the day. See Annex 17 for a summary of the conference evaluations.

4.7.1 Outcomes

During the event there was very little dispute over the principle of establishing targets, nor the proposed target ranges. Discussion focussed on the opportunities and constraints faced in successfully delivering the required capacity. Significantly, debate had moved on from just whether or not targets should be established and even what level the targets should have been.

Some of the key outcomes from the regional conference workshops included:

Community

- Need to define what the community is and who represents it
- Importance of plans down to parish level
- Risk of applications splitting communities
- Danger of tokenism
- Making connections for local people between consumption and generation
- Need for impartial advice
- Important not to place too many additional financial constraints on projects
- Need greater dialogue between communities and the industry

Landscape

- Need to acknowledge countryside is constantly changing
- Need to integrate a wide range of data needs both landscape and ecological
- How boundaries are defined is important but problematic
- The Local Plan has to be the key document to reflect how development and landscape issues can be accommodated
- This project has used a strategic approach to landscape assessment, there is a need for more local assessments in order to provide guidance on siting issues
- Landscape and ecological issues need to be fed into the development of locational guidance criteria which is then produced as a 'layman's' guide in order to make it as accessible as possible

LA-industry partnerships

- Planning officers/members need greater understanding of issues, opportunities and constraints and support
- Industry needs to clearly state benefits of projects above and beyond environmental issues
- Local authorities do not need to get into picking technologies
- Need local landscape impact analysis
- A regional developer forum could help enhance LA-industry dialogue prior to planning application – could be led by Regen SW
- Local Strategic Partnerships and other ‘honest brokers’ like the Community Renewables Initiatives can play an important role

Sustainable energy and 2020

- Need regional CO2 targets
- Need to explain output of REvision 2010 in the light of broader SW agenda
- Need to include transport
- Need sustainable energy strategy for SW
- Local Plans should integrate sustainable energy issues e.g. encouraging best practice on new development
- Need to understand best practice – need reliable sources of info – ‘one stop shop’

Many of these issues have been picked up again in section 7.4 looking at the need for further work.

4.8 Adoption of Targets

4.8.1 Methodology

Following the conference, discussions were held in each area in order to establish the process necessary to take the target through to a point where it could be said to have wide acceptance. This was the key outcome set within the brief for REvision 2010.

The following outcomes were identified for each of the seven areas.

- Adoption of target within the Structure Plans under review in Devon, Cornwall and Gloucestershire
- Adoption of target within supplementary planning guidance within the former Avon area to support the already adopted Joint Structure Plan
- Adoption of the target by members in Dorset, Wiltshire and Somerset so that it can be integrated into their Structure Plan reviews if they go ahead or alternatively the Regional Spatial Strategy

All areas are in the process of developing renewable energy/sustainable energy strategies or climate change strategies though they have been progressed to different levels. For example, Devon’s is almost complete whilst Gloucestershire’s is only just starting.

These strategies become particularly important in Dorset, Wiltshire, Avon and Somerset as a potential home for the target until the Regional Spatial Strategy is established.

Achievement of these outcomes required attendance at a range of different meetings depending on the area. The process that was undertaken in each area is outlined in more detail within Annex 18 and included meetings with county and district planning officers, presentations to committee meetings and meetings with external agencies and local network groups. The input from REvision 2010 was low in areas where there was a high level of prior strategic activity (e.g. Devon) or where there was significant resource/expertise available from within the local authorities to deal with the issues (e.g. Somerset's Renewable Energy Officer). In these areas, REvision 2010 merely provided the information, the local authorities, in particular Somerset, effectively did the rest. In other areas where there wasn't the prior strategic activity or internal expertise to take the process forward, the input was far greater.

The project responded to issues as they arose and adapted the process accordingly. Hence meetings were successfully facilitated with both the MOD with respect to Wiltshire and the Civil Aviation Authority with respect to the former Avon, when it became clear that their involvement was necessary in order to address concerns that were being raised by local authority officers. In another instance, a meeting of all heads of planning from the districts and the county in Gloucestershire was necessary. In order to establish a common view of what was appropriate in terms of a target for the area in the light of significant concern expressed by elected members there.

4.8.2 Outcomes

The response to this final process of discussion and negotiation was again positive. In several areas there was a significant amount of concern expressed by elected members concerning the introduction of wind turbines within the landscape. Other technology concerns that affected the final target figures were to do with energy from waste and the transport impacts and lead-in times of medium to large scale biomass.

The consultation process was effective in establishing the concerns of stakeholders. This enabled a response that addressed these issues in a constructive manner. This was helped significantly by the active support of many local authority officers throughout the region.

As of June 2004, targets have been adopted or approved in Wiltshire, Somerset, Dorset, Devon, Cornwall and the former Avon. Devon and Cornwall's target has been approved by members within the modifications to their Structure Plan, though they still have to go for a final consultation before the Plans are adopted. Dorset's target has been approved by members within policy as part of Dorset's deposit Structure Plan, though it has a lot further to go than Cornwall or Devon's plan before adoption. Gloucestershire's target has been incorporated into the modifications to their Structure Plan which will be reviewed by members in July.

All areas are also now in the process of developing renewable energy/climate change strategies which can also provide added weight to the target. More importantly these strategies provide the mechanism for supporting the target's successful delivery.

These targets are summarised in figure 4 below. The targets outlined here result in a range of between 563 and 665 MW by 2010 from the region as a whole. As outlined within the background to this report, Regional Planning Guidance sets a target equivalent to 597MW of renewable electricity capacity by 2010. This represents roughly the half way point of the range set by the targets generated through the REvision 2010 process.

Status of Relevant Policy/Strategy Development	Causes of Variation Between Draft Target Ranges and Adopted Target Ranges	Basis of Adoption		Draft Target Ranges (MW)	Adopted Target Ranges (MW)	Electricity Generated (GWh)	Equivalent homes supplied
		For Adopted Target	Adopted by JSPTU				
Former Avon	None	Adopted by JSPTU	42,750-62,500	171-250	35-52	171-250	62,500
County sustainable energy strategy and planning guidance currently being finalised.	None – though County will be highlighting lower end of the range within their structure plan as being more likely to be met	Approved by members as mod's go for consultation	91,750-101,750	367-407	93-108	367-407	101,750
County renewable energy strategy completed	County selected figure as mid range. On the basis that the possible contribution from energy from waste was considered unlikely to be met. Assumed top end of wind range.	Approved by members as mod's go for consultation	155,750	623	151	623	155,750
County renewable energy strategy under development	None	Approved by Joint Structure Plan	73,750-86,750	295-347	64-84	295-347	86,750
County renewable energy strategy under development	Contribution from energy from waste discounted. However the bottom end of the resulting range was also increased.	Included within mod's to structure plan to be considered by members	45,750-52,250	183-209	40-50	183-209	52,250
County renewable energy strategy complete. Planning to develop climate change strategy	None	Adopted by Full Committee	89,750-103,000	359-412	61-81	359-412	103,000
County renewable energy strategy under development	Contribution from energy from waste considered unlikely.	Adopted by Cabinet Committee	73,750-87,000	296-348	65-85	296-348	87,000
Offshore			50,000	153	56	153	50,000
South West			623,250-698,750	2,493-2,796	563-665	563-665	698,750

Note: Draft target ranges were presented as part of the Revision 2010 consultation process to stimulate debate. Adopted target figures have been adopted by the different areas as outlined within the table.

Figure 4: Summary of target ranges and their status

5 RELATIONSHIP WITH OTHER STUDIES

5.1 Terence O'Rourke/ETSU

The Terence O'Rourke/ETSU (TORE) regional resource assessment was published in February 2001 and was funded by the Government Office for the South West. It provided the basis for the current South West target adopted by the Regional Planning Guidance. A target of 11-15% of renewable electricity generation from renewable energy sources by 2010. This equates to 597MW.

The main differences between the target ranges in Annex 13 and the figures outlined within the TORE study include the following:

A higher proportion of onshore wind, spread more evenly across the sub region: This is primarily due to lower wind speed areas becoming more economically viable as a consequence of the higher than anticipated price of Renewable Obligation Certificates (ROCs). (See resource maps in Annex 5) In addition, wind turbine technology has improved. This has enabled the commercial production of larger more efficient turbines able to make use of higher wind speeds at 65m plus above ground level rather than 45m. This has opened up more areas of the South West for wind development (potentially those that are less sensitive), hence the change in spatial distribution. The more detailed landscape sensitivity analysis has reduced the wind energy potential in sensitive areas but this has been compensated for by the improved resource availability.

A lower contribution from biomass: The contribution from energy crops and forest residues has been reduced. The TORE study used a figure of 4,500 dry tonnes biomass per year per MW (electric) when calculating resource. This implies an electrical generation efficiency of 40%+ which is only achievable by larger scale (10MW+) Combined Cycle Gas Turbine (CCGT) power plants coupled to gasification/pyrolysis systems. Smaller systems that cannot use CCGT technology are more likely to be the norm in the South West and would only achieve some 20%-30% electrical generation efficiency, requiring around 8000 dry tonnes per year per MW (electric). This will have the overall effect of reducing the available biomass resource.

The amount of generation based on straw has also been reduced, as there is already a strong market for straw in much of the South West resulting in a high price in some counties. The economic straw resource is therefore fairly thinly spread. Consequently, it is unlikely that a power plant would be built that is exclusively straw fired. However, it may be used to supplement other biomass feedstocks where the combustion technology is compatible.

Similarly, because of the diffuse nature of the resource, there is little likelihood of a dedicated poultry litter fired powerplant being built. However it could provide additional feedstock to an anaerobic digestion plant.

Finally the economics of biomass have not improved significantly in the last two years with no significant progress in biomass utilisation. The failure of ARBRE has also had a negative effect on farmers seeking to grow energy crops.

More centralised anaerobic digestion: The successful implementation of the 1.4MW centralised anaerobic digestion plant at Holsworthy in Devon is expected to accelerate the uptake of this technology within the region.

A different basis for incorporating energy from waste: The TORE study assumed that the total capacity from energy from waste plant was included within the target. This amounted to 20MW from municipal and industrial waste. REvision 2010 will be including energy from waste on the basis that it is considered within the Renewables Obligation i.e. the element of capacity based on non fossil fuel derived waste utilising advanced technologies such as pyrolysis or gassification. This equates to roughly 50% of the total capacity (assuming advanced technology). However, the actual regional target should also be revised down to acknowledge the changed base for energy from waste. This might therefore result in the regional target falling from 597MW to 587MW. The total capacity from energy from waste within the target ranges amounts to over 70MW. However in discussions with the sub regions this element is being reduced as a result of an inability to integrate new development within existing waste contracts/waste plans and uncertainties about technologies like pyrolysis/gasification.

More energy from waste: Even given the comments above, the likely figure for the energy from waste contribution could still be higher than that forecast by TORE. Notwithstanding the trend towards increased re-use and re-cycling, most unitary and county waste plans do have a waste to energy element in them. This coupled with the decreasing availability and increasing cost of landfill is expected to encourage the implementation of energy from waste plants. For example Cornwall has submitted a planning application for a 5MW MSW fired plant. This study has also assumed a higher utilisation of the commercial and industrial waste stream.

Following publication of the Regional Assembly's Regional Waste Strategy, the data sources for this project will be revised to ensure that there is an appropriate link between the assumptions incorporated within the two projects.

5.2 The South West Wood Fuel Strategy

A study carried out by Renewable Heat and Power on behalf of the Forestry Commission, the Countryside Agency and the South West Regional Development Agency has been looking at the Wood Fuel Opportunity within the South West. This project is nearing completion and draft documents highlight a range of scenarios for the South West. In terms of Electricity Generation from wood fuel (including energy crops) the four scenarios highlighted the potential for:

Scenario 1: Business as usual – 2.5 MW(e)

Scenario 2: Enhanced Wood Fuel – 11.5MW(e)

Scenario 3: Enhanced Wood Fuel plus small scale CHP – 43.2 MW(e)

Scenario 4: Enhanced Wood Fuel plus large scale CHP – 94.2 MW(e)

The total assumed contribution from biomass throughout the whole South West towards the REvision 2010 targets is 73MW(e). This places the REvision 2010 assumptions midway between scenarios 3 and 4. This seems an appropriate expectation for a challenging but achievable contribution towards the overall target. Again it is worth stressing that the individual contributions from any technology estimated within REvision 2010 are not intended to be targets in themselves merely as estimates of how the REvision 2010 target might be met.

5.3 Powergen's planning led approach to site identification

Powergen are currently carrying out a site identification process within the South West through consultants Albro and Dulas. As part of this project they have generated a more detailed site constraints map of the region that includes local landscape designations as well as national designations, buffer zones around CAA and MOD sites, microwave transmitters etc. These maps in GIS form have then been presented to local authority planning officers in a process designed to identify areas of least constraint. Albro/Dulas have then followed up these leads with site research to identify the potential for commercial development and the submission of planning applications.

Early indications were that this approach was causing some confusion with the REvision 2010 consultation due to the differing assumptions that went into the analysis.

As a result of these concerns, a meeting was held with Albro and Dulas in order to identify any differences in approach and to ensure that the two projects were presented in a way that was compatible.

The most significant difference identified, beyond the scale of site constraints under study, was how the wind speed was presented. The Powergen study assumed 6.5 m/s economic wind speed at 45m agl. This is roughly the same as REvision 2010 (6.25 m/s at 25m agl). However, the Powergen project also mapped areas with 6.1 m/s to 6.5 m/s wind speeds and this was causing some confusion with local authority officers.

Lower wind speeds were mapped to provide Powergen with the flexibility to go for sites where there was something particularly favourable, like areas with potentially low planning constraints or low construction costs. This approach also allowed for a margin of error appropriate when looking for actual sites and using the NOABL wind speed database.

The initial meeting established how the projects might be presented so as to ensure a complementary approach whilst making clear that REvision 2010 was not giving preference to a commercial initiative.

In the light of this, it was agreed that REvision 2010 should be represented at the Devon workshop being held with district and county planners. At this workshop the differences and the links between the two projects were clearly established.

It is unclear at this stage whether Powergen will be continuing with this approach in any of the other sub regions of the South West.

5.4 Regen SW's study on existing capacity within the region

Regen SW have just completed a detailed study of all the existing renewable electricity capacity throughout the region. The analysis is more detailed and up to date than that carried out by the TORE study that the REvision 2010 project used as its starting point.

As a result there are a couple of discrepancies between the figures. These include an underestimate by REvision 2010 of the current capacity of landfill gas in some areas and hydro in Devon and Somerset. The REvision 2010 figures did not allow for the hydro capacity at the water treatment works in Devon and Somerset and did not

identify all the hydro sites in Devon identified by Regen SW. REvision 2010 took the view that there would be little extra small scale hydro in Devon though there could well be a significant number of micro hydro plant in Devon and elsewhere within the South West. If the number of micro hydro sites developed are extensive and begin to add up to more than the potential for hydro as identified with REvision 2010 this should be encouraged as it will make the overall target easier to reach.

The REvision 2010 estimate for landfill gas was based on those sites identified in the TORE study as current NFFO projects or planned projects, updated where identified by local authorities as being necessary, as occurred in Dorset. The higher than anticipated price of ROCs has allowed additional capacity to be implemented that would have previously been sub-economic at both existing generating sites and sites with no previous capacity. Cornwall is a good example of this where an additional 2MW has been installed at United Downs and the 600kW originally planned at Cannon Bridge was increased to 3.26MW.

The Regen SW study has also included Sewage Gas plant. REvision 2010 did not include Sewage Gas as it was assumed that the power generated would not be exported to the grid.

There is some uncertainty as to whether the figures included within the Regen study are the total capacity at these plants or just that which are securing ROCs. It is not clear whether the capacity identified accounts for the use of natural gas to stabilise the calorific value of the sewage gas, thereby reducing the quantity of ROCs secured from the output, nor whether it is the capacity that exports to the grid or used on site. Both these factors are difficult to account for when just considering installed capacity.

This additional resource means again that the targets will be a little easier to achieve though it is uncertain how sensitive this capacity would be to a fall in the ROC price.

This debate emphasises the importance of moving the target from an installed capacity basis to one based on consumption as soon as reliable data becomes available at a sub regional level.

The original tender for REvision 2010 emphasised the importance of not repeating the assessment carried out as part of the TORE study unless it would make a significant impact on the results of the work. The overall impact of the differences discussed here is not significant in terms of the overall target.

Annexes 6, 13, 14 and 15 that include detailed breakdowns of the target figures deal with the issues outlined above as follows.

Annex 6, the initial resource figures by county and annexes 13 and 14, the breakdown of the target ranges, do not take into account these changed figures. This was the basis the project was taken on and the figures that have been discussed with local authorities. It would be inappropriate to change them now. Annex 15 provides a more detailed rationale for the target figures for each county/sub region and also summarises the existing capacity within each region. Here the latest figures for existing capacity as identified by Regen SW are used.

The climate within which renewable energy is developed is highly sensitive to changes in the regulatory and economic framework, hence the need to retain the overall target but remain flexible about how it might be reached.

6 APPROACH TO DEVELOPING LOCATIONAL GUIDANCE

One of the original outputs of the project was the production of regional locational guidance. Given the level at which this project is operating, i.e. feeding into regional interim planning guidance and influencing the review of Structure Plans, it is not possible within guidance to provide criteria that will in themselves define a location. This level of precision will require more detailed work at district level.

The regional guidance that will be developed will form a checklist of issues that may then inform the approach to addressing locational issues at a local level. The regional locational guidance will therefore highlight the issues that will need to be addressed and how, as well as signposting to existing guidance documents.

Regional locational guidance is likely to cover the following issues

Generic issues may include:

- Ecology
- Noise
- Electromagnetic Interference
- Archaeology and historical buildings
- Access and servicing
- Grid connection
- Decommissioning

Technology specific issues, e.g.

- Wind speed for wind
- Proximity of heat load for biomass
- Water abstraction licences for hydro

Landscape issues (as they impact on wind in particular, though not exclusively) may include:

- Landform scale and pattern
- Nature of skyline
- Openness/enclosure
- Intervisibility/cumulative impact
- Remoteness
- Visual impact

The target audiences for the locational guidance will be planners/members and the renewable energy industry. As such, guidance will not cover biomass crops beyond referring to existing guidance from British Biogen and DEFRA. Biomass crops do not require planning consent to establish.

The locational guidance criteria will be framed in order to influence the emerging Local Development Frameworks. This will in turn provide greater clarity for developers on the issues that should influence planning decisions at a local level. In addition, the process of developing the criteria further, both regionally and locally, will help to further our understanding of the relationship between renewable energy technologies and the planning system within the South West.

Currently early drafts of the locational guidance criteria are being developed. Work in Cornwall on Planning Guidance for renewables, including locational guidance, is being monitored and where appropriate will be integrated within the regional work.

Final working drafts for consultation will need input from the review of PPS 22 in order to set the appropriate balance for the framework at a regional level.